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To: Delta Protection Commission

From: Lori Clamurro, Delta Protection Commission Staff

Re: Grasslands Bypass Project Update

The Central Valley Regional Water Quality Control Board (CVRWQCB) recently released two documents for review and comment. The two draft reports consolidate and present water quality data collected as part of CVRWQCB's Agricultural Drainage Monitoring Program, during the water year prior to and the first year of operation of the Grassland Bypass Project. The first report, ***Agricultural Drainage Contribution to Water Quality in the Grassland Watershed of Western Merced County, California: October 1995 through September 1997***, presents data collected in the Grassland Watershed within the San Joaquin Valley; the second, ***Water Quality of the Lower San Joaquin River: Lander Avenue to Vernalis: October 1995 through September 1997***, presents data collected in the Lower San Joaquin River.

Agricultural Drainage Contribution to Water Quality in the Grassland Watershed

When the Grasslands Bypass Project became operational on September 23, 1996, it effectively consolidated agricultural subsurface drainage from the Drainage Problem Area (DPA) into a single channel for discharge into the final six miles of Mud Slough, and removed the drainage from Salt Slough and from the 90 miles of internal wetland water supply channels. Figure 14 (pg. 3 of this memo) depicts the changes in EC (Electrical Conductivity, or salinity), boron, and selenium concentrations in Mud Slough and Salt Slough for the year prior to and the first year of Bypass operation.

The EC, boron, and selenium concentrations **declined** in Salt Slough and **increased** in Mud Slough once the Bypass began operation, with the most dramatic change occurring with selenium concentrations. Concentrations in the wetland water supply channels was more variable; overall, concentrations **decreased** dramatically, but there were a number of concentration spikes apparent throughout Water Year 1997 (possibly due to elevated selenium levels in supply water, seepage and flood flow releases from the DPA, and internal sources such as groundwater seepage and surface return flows).

Water Quality of the Lower San Joaquin River

The first year of operation of the Grasslands Bypass Project was Water Year 1997. Between Water Years 1996 and 1997, there was little difference in water quality concentrations or seasonal trends at the majority of San Joaquin River stations monitored (shown in Figure 1, pg. 4 of this memo). The exception was at the Fremont Ford monitoring station (located downstream of Salt Slough and upstream of Mud Slough), which experienced decreased concentrations of EC, boron, and selenium (Figure 6, pg. 5 of this memo). This decrease can be attributed to the rerouting of agricultural drainage in the upstream Grassland Watershed as part of the Grasslands Bypass Project. The redirection of the drainage did not have a significant impact on water quality in the San Joaquin River downstream of Fremont Ford. Further reduction in the amounts of EC, boron, and selenium occurred where inflows from the Merced, Tuolomne, and Stanislaus Rivers provided dilution water.

Figure 14. Comparison of Selenium, Boron and Electrical Conductivity at Salt Slough and Mud Slough (North) Downstream of the San Luis Drain: Water Years 1996 and 1997.

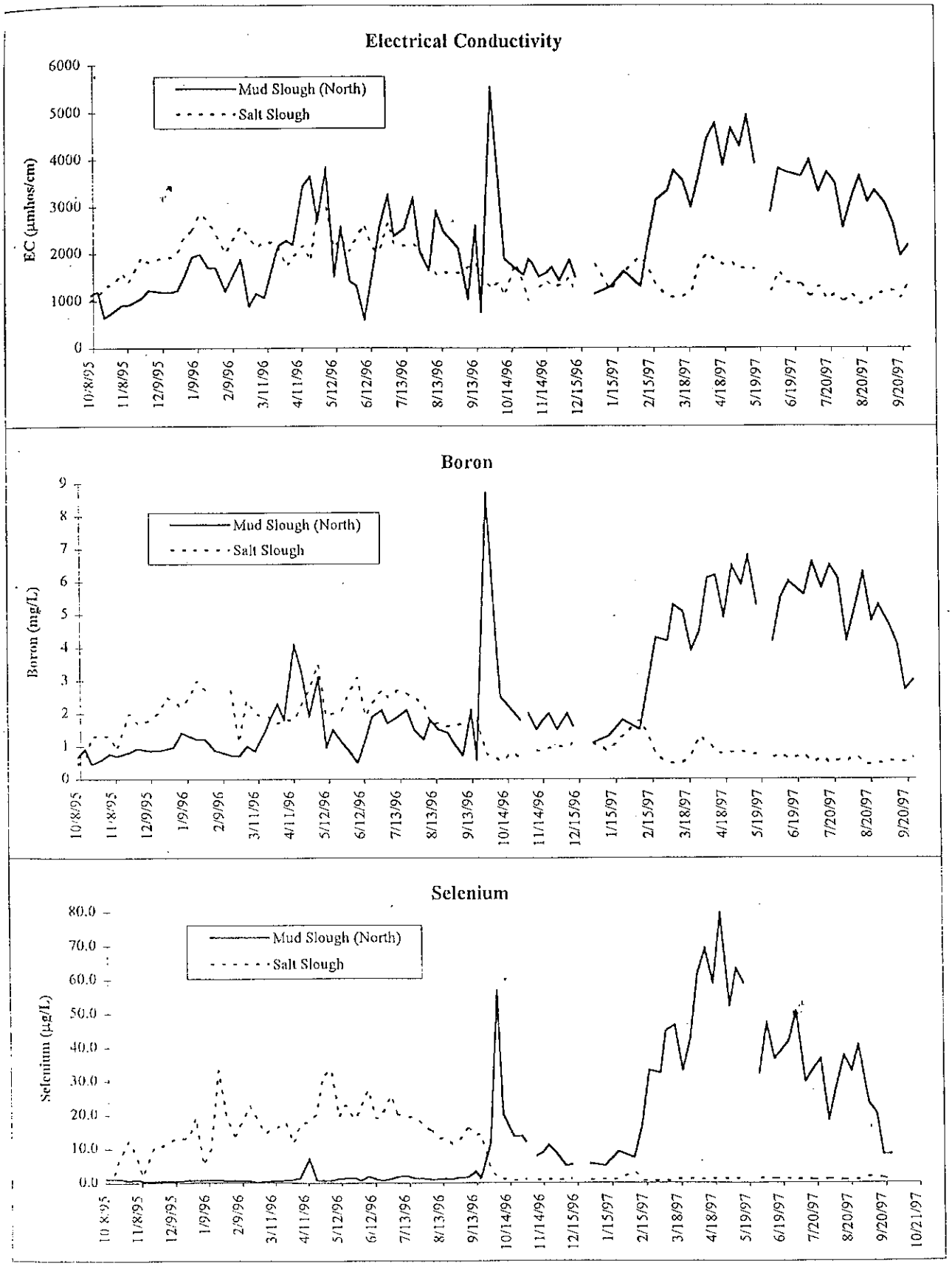

Figure 1. Monitoring Locations Along the Lower San Joaquin River.

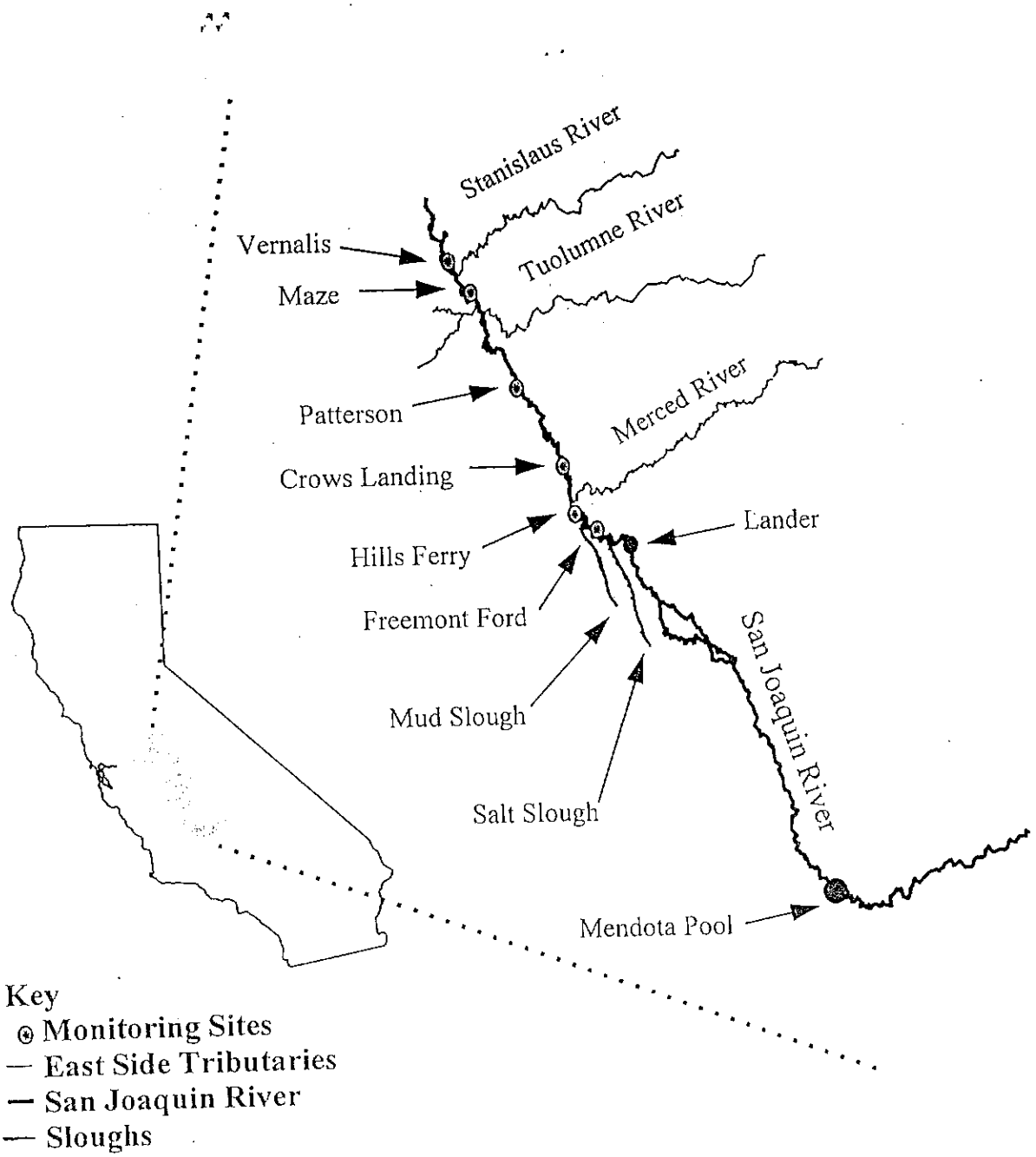

Figure 6. Comparison of Electrical Conductivity, Boron, and Selenium Concentrations in the San Joaquin River at Fremont Ford: Water Years 1996 and 1997.